

PRE-FEASIBILITY REPORT

1.0 EXECUTIVE SUMMARY

TABLE - 1.0

| S. No. | Particulars | Details |
|------------|-----------------------------|---|
| A. | Name of the Project | Proposed Limestone Mine (M.L. Area: 74.38 ha) of M/s Ultratech Cement Ltd. (Unit: Reddipalayam Cement Works) |
| 1. | Limestone & Marl Production | 0.5 MTPA |
| B. | Location Details | |
| 2. | Village | Ottakovil |
| 3. | Taluk | Ariyalur |
| 4. | District | Ariyalur |
| 5. | State | Tamil Nadu |
| 6. | Latitude | 11°12'17" to 11°12'52" N |
| 7. | Longitude | 79°06'04" to 79°06'48" E |
| 8. | Toposheet No. | 58 M/4 |
| C. | Lease Area Details | |
| 9. | Mining Lease area | 74.38 ha |
| D. | Cost Details | |
| 10. | Project Cost | Rs. 250 Lakhs/- |
| 11. | Cost of EMP | Rs. 20 Lakhs/- |
| 12. | Recurring Cost/Annum | Rs. 7.5 Lakhs/Annum/- |
| E. | Others | |
| 13. | Water Requirement | 30 KLD (Source : Bore well) |
| 14. | Man power Requirement | 50 Persons |
| 15. | Extent of mechanization | Fully Mechanized Opencast Mining Method |

2.0 INTRODUCTION OF THE PROJECT / BACKGROUND INFORMATION

2.1 IDENTIFICATION OF PROJECT & PROJECT PROPONENT

(A) Identification of Project and Project Proponent

UltraTech Cement Ltd. is a flagship company of Aditya Birla Group and it is the largest cement manufacturing company in India and the 9th largest in the world ranking with present annual capacity of 52 Million Ton Per Annum (MTPA) including 3 MTPA capacity outside India.

The production units are spread across 11 integrated plants, 11 grinding units and 4 bulk terminals in India. It has pan India presence. All the plants have ISO 9001 certification. UltraTech also has own jetty (Captive Birth) at its plant in Gujarat for export market and domestically in Mumbai market. Combined market share of the business is around 19%. Apart from India Company has presence in UAE, Bahrain, Bangladesh and Sri Lanka with 1 integrated plant, 4

Grinding Units and 1 Bulk Terminal. In addition to cement, UltraTech is the largest player of Ready Mix Concrete Business with 73 plants across India.

UltraTech Cement is also the country's largest exporter of cement clinker. The export markets span countries around the Indian Ocean, Africa, Europe and the Middle East.

UltraTech's subsidiaries are Dakshin Cements Limited, Harish Cements Limited, UltraTech Ceylinco (P) Limited and UltraTech Cement Middle East Investments Limited.

The Aditya Birla Group is India's first truly multination corporation. Global in vision, rooted in Indian values, the group is driven by performance ethic pegged on value creation for its multiple stake holders. A US \$ 35 billion conglomerate, with a market Capitalization of US\$ 226 billion as on 31st March 2011. It is anchored by an extraordinary force of 133,000 employees worldwide. About 60 per cent of its revenues flow from its operations outside India.

In the year 2011, the Group was ranked 4th globally and 1st in the Asia-Pacific region as top company for leaders in a study conducted by Aon Hewitt Associates, RBL Group and Fortune magazine. In India, the Group has been adjudged the best employer in India and among the top 20 in Asia by the Hewitt-Economic Times and Wall Street Journal Study 2007.

The Group operates in 25 countries - India, UK, Germany, Hungary, Brazil, Italy, France, Luxembourg, Switzerland, Australia, USA, Canada, Egypt, China, Thailand, Laos, Indonesia, Philippines, Dubai, Singapore, Myanmar, Bangladesh, Vietnam, Malaysia and Korea.

(B) Mining Lease Status:

The applicant intends to mine 0.5 MTPA of limestone & Marl from the allocated mining lease area of 74.38 ha by fully mechanized opencast mining method.

LOI for the mine has been obtained from Department of Geology & Mining vide letter No. 7057/MM1/2009 dated 22.02.2012. Copy of the same has been annexed as **Annexure-2**.

2.2 BRIEF DESCRIPTION OF THE NATURE OF PROJECT

The applicant intends to mine Limestone from the allocated mining lease area of 74.38 ha.

M/s Ultratech Cement Ltd., possessing a clutch of cement plants all over India, is operating a 1.0 MTPA plant in Village: Reddipalayam, Taluk & District : Ariyalur, State: Tamilnadu. The company has plans to expanding the capacity of the existing 1 MTPA plant to 2.5 MTPA. However, the final capacity of the plant would crucially depend upon the availability of an assured supply of cement grade limestone form nearby areas.

Since the ultimate capacity of the plant essentially depends upon the availability of the cement grade limestone, Ultratech Cement Ltd., has decided to go for detailed exploration in the available leases.

On 16.04.2009, M/s Grasim Industries Ltd released a work order for survey and exploration by core drilling for both Kairulabad and Ottakovil Kuthur for a total metreage of 750 m (25 bore holes of 30 m depth) to prove the limestone reserves within the lease hold.

Screening Category: As per EIA Notification dated 14.09.2006, as amended on 1st December, 2009, the project falls under **S. No. '1'** (Mining of Minerals), Project or **Activity '1(a) - (3)', Category "A"**.

2.3 NEED FOR THE PROJECT & ITS IMPORTANCE TO THE COUNTRY/ REGION

Cement is an essential ingredient for the modern building construction. The new generation cement plants in India now employs the latest technology for better efficiency, energy conservation and economics of large capacity production. The improved market conditions witnessed recently, after a gap of recession over a long period, are expected to continue due to high priority being given by the Government to housing construction and also in view of the massive investment proposed in industry and rural sectors. Therefore, there is an urgent need to increase the cement production capacity in the country inspite of severe resource constraints. Hence this project will help in decreasing demand of cement countrywide.

The limestone mining project of M/s. Ultratech Cement Ltd. (Unit: Reddipalayam Cement Works) has a production capacity of 0.5 MTPA Limestone and Marl which will meet the partial requirement of the Cement Plant, which is located at District – Ariyalur (Tamilnadu).

2.4 Demand Supply Gap

The proposed mining project will cater the additional limestone requirement for proposed expansion of existing cement plant at Reddypalayam Cement Works.

2.5 IMPORTS VS. INDIGENOUS PRODUCTION

As the raw material for manufacturing of limestone is available locally, there is no requirement of import of limestone.

2.6 EXPORT POSSIBILITY & DOMESTIC/EXPORT MARKETS

The generated limestone will be fully utilized by M/s Ultratech Cement Ltd. and hence no possibility of export of Limestone.

2.7 EMPLOYMENT GENERATION (DIRECT & INDIRECT) DUE TO THE PROJECT

The total man power including staff and workers required will be 50 persons.

3.0 PROJECT DESCRIPTION

3.1 Type of project including interlinked and interdependent project, if any.

M/s Ultratech Cement Ltd., is having an existing cement plant (1.0 MTPA) in Village: Reddipalayam, Taluk & District: Ariyalur, State: Tamil Nadu. The company has plans to expanding the capacity of the existing 1 MTPA plant to 2.5 MTPA. To cater the limestone requirement for the same, the limestone mine (ML area 74.38 ha) with Limestone & Marl Production Capacity 0.5 MTPA has been proposed near Village: Ottakovil, Taluk & District: Ariyalur (Tamil Nadu).

3.2 LOCATION (MAP SHOWING GENERAL LOCATION, SPECIFIC LOCATION, AND PROJECT BOUNDARY & PROJECT SITE LAYOUT) WITH COORDINATES

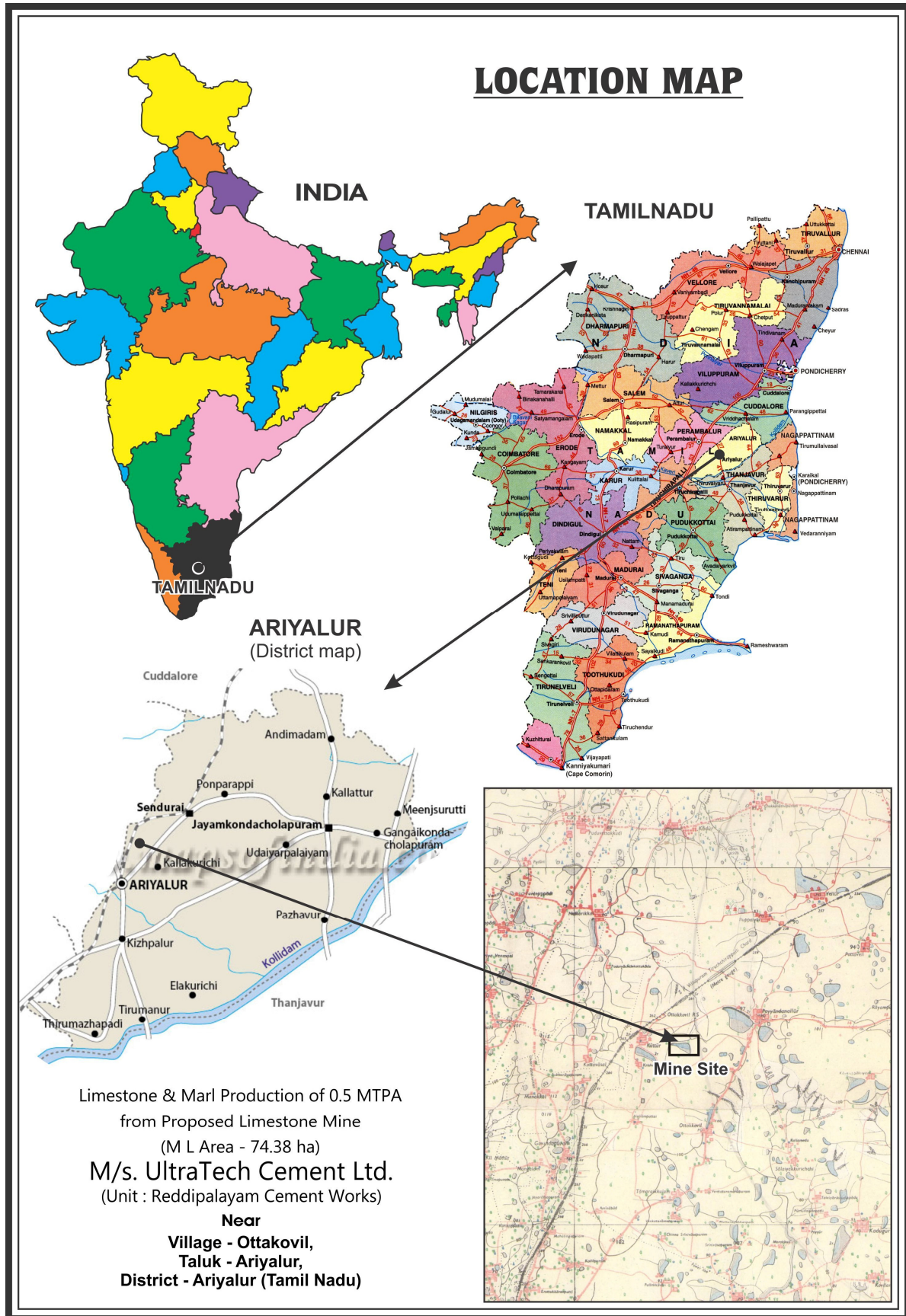


Figure 1 : Location map showing general & specific location of the mine site

3.3 DETAILS OF ALTERNATE SITES CONSIDERED

No alternative site is considered as the mineral is available at this site.

3.4 SIZE OR MAGNITUDE OF OPERATION

UltraTech Cement Ltd. has proposed limestone mine (ML area 74.38 ha) with Limestone & Marl Production Capacity 0.5 MTPA near Village: Ottakovil, Taluk & District: Ariyalur (Tamil Nadu).

3.5 PROJECT DESCRIPTION WITH PROCESS DETAIL

3.5.1 REGIONAL GEOLOGY OF THE AREA

The Cretaceous rock formations of Tiruchirapalli district, especially the limestone formations has been evincing great interest amongst several geologists since it possesses immense wealth of fossils and is known as the museum of the South India and as a potential source of the basic raw material for cement plant.

The sedimentary rocks rests over the Archean platform which are exposed along the western, south-eastern margins of the basin. The Uttatur and Trichinopoly Groups are folded in the southern part of the basin, whereas, the Ariyalur Group is free from folding.

Reddipalayam etc. form a part of Kallankurichi formations.

The contact of Ariyalur Group with the underlying Trichinopoly beds is mostly concealed by recent alluvium. A critical examination shows that the regional dips of the Ariyalur formation is 3 to 5° towards north east. The fossiliferous Ariyalur beds were laid down in the regressional sea. The Ariyalur carbonate rock hosts forams, miliotids, pelicycypods, gastropods, echnoides, ammonites, nautiloids etc as fossils.

Ariyalur Group of rocks are more compact and stratified in contrast to the niniyurs.

Moreover, the Ariyalur Group of rocks, especially the Kallankurichi Formation (shelly limestone, arenaceous limestone and ferruginous limestone) sprawl over extent and width.

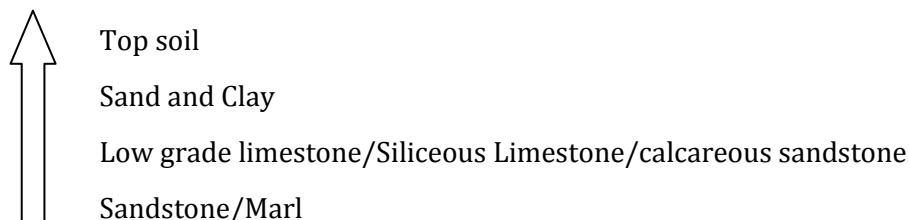
KALLANKURICHI FORMATIONS

This deposit in the area forms a part of Kallankurichi limestone formations of Middle Ariyalur stage of Cretaceous beds in South India. These deposits are geologically called the Maestrichian Limestones. Generally the limestone bed is sandwiched between two sandstone beds. It can be traced continuously for more than 9 km in the north – south direction starting from Srinivasapuram in the north through Kairulabad, Ameenabad, Periyanaagar, Hasthinapuram, Kattupiringium, Pudupalayam, Nerunchikorai, Villipiringium and further south up to Idaiathankudi on the banks of Marudaiyar river.

3.5.2 LOCAL GEOLOGY

The area exhibits a plain and a gently sloping surface. The top soil is black in color with 1.0 to 2.0 m in thickness. The top soil is underlain by sand and clay beds of 1.0 to 2.0 m thickness. Low grade limestone/Siliceous Limestone/Calcareous sandstone of thickness ranging from 2.00 to 6.00 m are also present. The calcareous sandstone is underlain by Sandstone and marl upto a depth of 30 m.

General Lithological Succession as per bore hole data



a) Soil

The soil is black in colour and its thickness varies from 0.0 to 2.0 m

b) Sand & Clay

The soil cover is followed by 2.0 m of sand and clay sometimes sandy clay is observed.

c) Low grade limestone/Siliceous Limestone/calcareous sandstone

The thickness of this horizon varies from 2.0 to 6.0 m. Many such layers of Low grade limestone/calcareous sandstone occur repeatedly with different percentage of CaO and SiO₂ which is typical and symptomatic of sediments deposited during regressional periods.

d) Sandstone/Marl

i) Sand/Sandstone: Arenaceous in nature with more of quartz grains and this litho unit is considered as a marker horizon.

ii) Marl: Marl is a calcium carbonate or lime-rich mud or mudstone which contains variable amounts of clays and aragonite. Marl is a term applied to a variety of material, most of which occur as loose, earthy deposits consisting chiefly of an intimate mixture of clay and calcium carbonate, specifically an earthy substance containing 35-65% clay and 65-35% carbonate. Marl is an indurated rock of earthy or impure argillaceous limestone. It has a hard compact blocky rock with sub-concoidal fracture, and is less fissile than shale.

3.5.3 EXPLORATION DETAILS

The geological mapping was done in 1: 2000 scale surveyed Surface plan. The entire area is covered with thick soil cover and limestone outcrops are not exposed in the entire lease area.

17 no of bore hole points were located and drilled. Samples were collected from the bore holes and chemically analysed. From the drilling data it is observed that the overall core recovery is poor but the recovery of about 60% is assumed for arriving at the reserves of limestone/lime rich material.

374 samples were analysed based on which 5 cross sections were drawn and the reserves were estimated. The overburden thickness is 9.5 m.

3.5.4 MINEABLE RESERVES AND ANTICIPATED LIFE OF THE MINE

Total geological reserves within the mining lease area 10.04 Million Tonnes. Mineable reserves has been calculated taking into consideration 7.5 m safety zone from mining lease boundary.

Tonnage conversion factor of 2.20 T/cum and recovery of 60% is considered for estimation of the reserves.

The total mineable reserves come out to be **8.604 Million tones** which will be able to sustain for ~ **17 years** taking average production of 0.5 MTPA.

3.5.5 YEARWISE LIMESTONE PRODUCTION DETAILS AND OVERBURDEN GENERATION

UTCL (RDCW) is proposed to produce 0.5 MTPA from the proposed Limestone Mine.

3.5.6 METHOD OF MINING

Mining will be done with opencast fully mechanized mining method.

3.5.7 EXTENT OF MECHANIZATION

Drilling will be done with wagon drill of 100 mm dia and blasting will be done with ANFO & Slurry explosives. Loading will be done with bucket excavator of 2.5 cum bucket capacity into a dumper of 25 tonnes capacity.

3.6 AVAILABILITY OF WATER ITS SOURCE, ENERGY /POWER REQUIREMENT AND SOURCE

(A) Water requirement:

The total Water requirement will be 30 KLD and the same will be sourced from borewell.

TABLE - 2.0
WATER REQUIREMENT

| Purpose | Requirement | Source |
|-------------------------------------|-------------|-----------|
| During Mine Operations | 05 KL | Bore well |
| Green Belt Development / Plantation | 10 KL | |
| Domestic | 05 KL | |
| Others, if any | 10KL | |
| TOTAL | 30KL | |

(B) Power Supply:

Power requirement for the proposed mining lease is 30 KW and power will be sourced from TNEB.

3.7 QUANTITY OF WASTE TO BE GENERATED (LIQUID AND SOLID) AND SCHEME FOR THEIR MANAGEMENT/DISPOSAL:

3.7.1 Nature of Waste

The proposed mining lease area is covered with soil. This top soil is black in colour with 1.0 to 2.0 m in thickness. The top soil is underlain by sand and clay beds of 1.0 to 2.0 m thickness. It is proposed to separately dump the soil in the area earmarked for dumping.

3.7.2 Disposal of Waste

Waste will be temporarily dumped within the mining lease area and will be backfilled into the mined out pit when the pit reaches its ultimate depth. This back filled area will be stabilized and afforested.

During the course of mining it is estimated that 19.093 Million Tonnes of waste will be generated.

3.8 Schematic representations of the feasibility drawing which give information of EIA purpose.

Surface plan of the lease area is enclosed with the Pre Feasibility Report as **Annexure 4**.

4.0 SITE ANALYSIS

4.1 CONNECTIVITY

- **Road & Rail** - The nearest town Ariyalur can be approached by road in all seasons. The nearest railway station is Ottakovil Kuthur of Southern Railway which is ~ 1.5 km from the mine site. The lease area is situated at a distance of 15 km in ESE Direction from NH - 45 & ~ 7.0 km in SW Direction from SH - 27.
- **Air** - Thanjavur airport (45 km away in SSE direction) is the nearest major airport from the mine site.

4.2 LAND FORM, LAND USE AND LAND OWNERSHIP

The granted M.L area falls under Patta Land Category.

Land details is as follows:

TABLE -3.0
LAND DETAILS

| District/ State | Taluk | Village | Survey No. | Area in (ha) | Ownership Occupancy |
|--------------------|----------|-----------|---|-----------------|------------------------|
| Ariyalur | Ariyalur | Ottakovil | Enclosed as <u>Annexure - 1</u> | 74.38 | Own Land |

4.3 TOPOGRAPHY

The area is almost a plain ground with the difference in maximum and minimum elevation being 6.5 m. the highest elevation in the area is 107.5 m on the South Western side of the area. The lowest elevation is 101.00 m falling in the northern eastern side of the area. The general slope of the area is towards east & north east.

There is no perennial river within the area explored. However a seasonal nala is seen flowing within mining lease area from South to North and Northeast. A pond i.e Moopan Eri is present in the middle of the area.

Generally the surrounding areas are covered by agricultural lands and crops like, paddy , maize and also commercial crops like cotton, chillies, sugarcane etc, at places, are being cultivated.

The depth of water table is 5 to 6 m bgl. The average annual rainfall of Ariyalur Taluk area is 1096 mm

Copy of the Surface plan of the mining lease area is annexed as **Annexure-4**.

4.4 EXISTING LAND USE PATTERN {AGRICULTURE, NON-AGRICULTURE, FOREST, WATER BODIES (INCLUDING AREA UNDER CRZ)}, SHORTEST DISTANCES FROM THE PERIPHERY OF THE PROJECT TO PERIPHERY OF THE FORESTS, NATIONAL PARK, WILD LIFE SANCTUARY,

ECO SENSITIVE AREAS, WATER BODIES (DISTANCE FROM THE HFL OF THE RIVER), CRZ. IN CASE OF NOTIFIED INDUSTRIAL AREA, A COPY OF THE GAZETTE NOTIFICATION

Details of Environmental settings around the project site is given in the table given below:

TABLE - 4.0

Environmental Settings Details

| S. No. | Particulars | Details |
|---------------|---|---|
| 1. | Nearest Railway Station | Ottakovil of Southern Railway which is ~ 0.5 km from the mine site |
| 2. | Nearest town | Ariyalur ~7.5 km in SW direction |
| 3. | Nearest City | Ariyalur ~ 7.5 km |
| 4. | Nearest Airport | Thanjavur Airport at ~ 45.0 km in SSE direction from mine site. |
| 5. | National Highway | ➤ SH-27 (~ 6.5 km in SW) ➤ SH - 143 (~ 3.5 km in NW) |
| 6. | Archaeological Important Place | None, within 10 km radius area of mine site. |
| 7. | Ecological Sensitive Areas (National Park, Wild Life Sanctuary, Biosphere Reserve etc.) | None, within 10 km radius area of mine site. |
| 8. | Reserved / Protected Forest within 10km radius | Vannankurichchi Reserved Forest - 8.7 km (E) |
| 9. | Nearest River / water body | Seasonal nala - within mining lease area from South to North and Northeast Moopan Eri Pond - in the middle of the area |

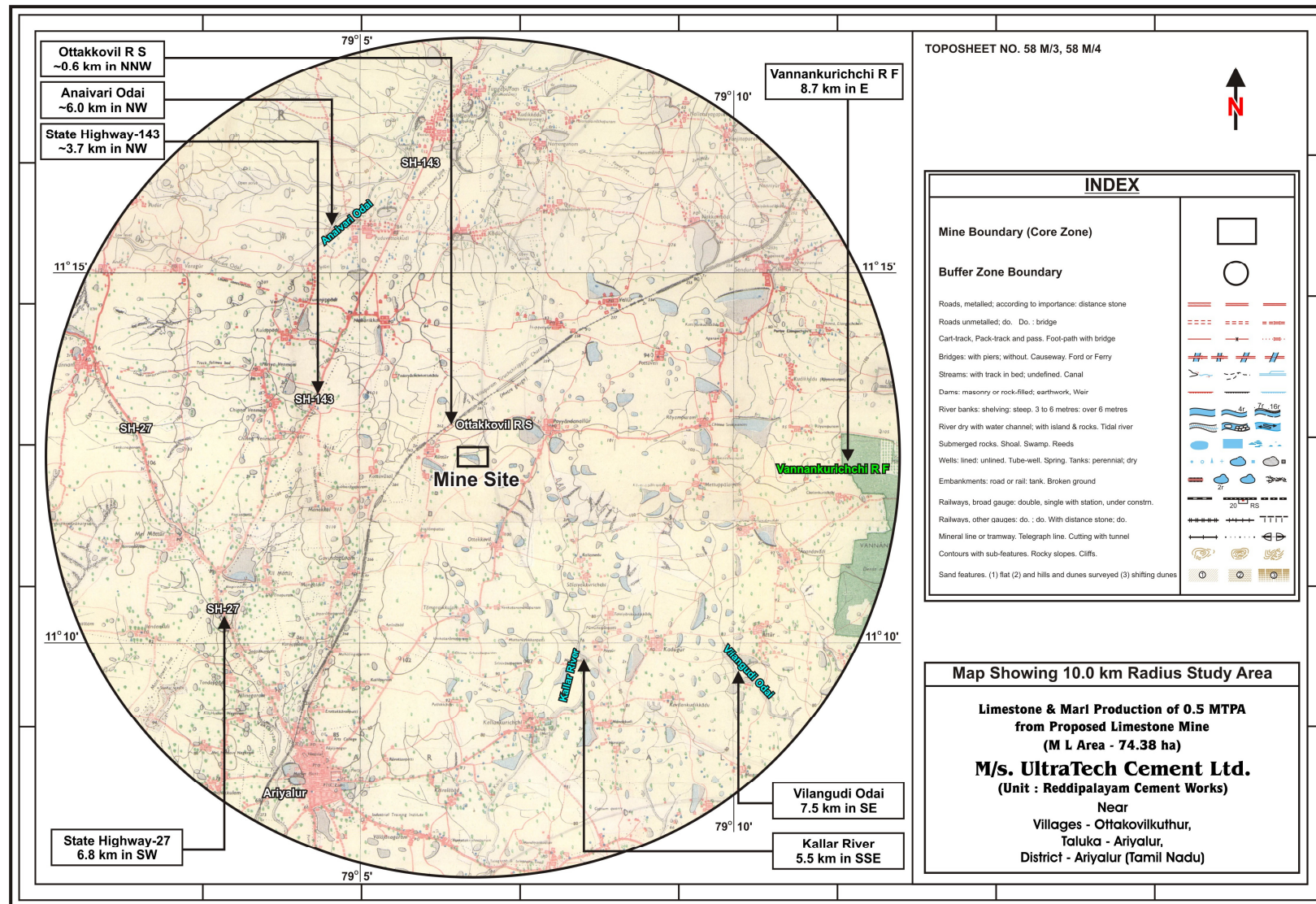


FIGURE 2.0: KEY PLAN SHOWING ENVIRONMENTAL SETTINGS OF THE STUDY AREA

4.5 EXISTING INFRASTRUCTURE

The nearest town Ariyalur can be approached by road in all seasons. The nearest railway station is Ottakovil Kuthur of Southern Railway which is ~ 1.5 km from the mine site. The lease area is situated at a distance of 15 km in ESE Direction from NH - 45 & ~ 7.0 km in SW Direction from SH - 27. Thanjavur airport (45 km away in SSE direction) is the nearest major airport from the mine site.

4.6 SOIL CLASSIFICATION

The soil in the lease area is black in colour and its thickness varies from 0.0 to 2.0 m.

4.7 CLIMATIC DATA FROM SECONDARY SOURCES

Ariyalur district enjoys a warm and humid climate with hot summers and moderately cool winters. The hottest season is from March to May. During this season the maximum temperature often exceeds 40°C. The winter season is spread over two months viz. January and February and the nights are cool and pleasant. The region generally has a high humidity.

The region receives the rainfall under the influence of both southwest and northeast monsoon. There is a gradual decrease in precipitation from northeast to southwest over the district. The normal rainfall for the period (1901-70) ranges from 843.5 to 1123.3 mm.

4.8 SOCIAL INFRASTRUCTURE AVAILABLE

Most of the social infrastructural facilities like medical, post office, schools, police station, clinic, hospital etc. are available at nearby towns.

5.0 PLANNING BRIEF

5.1 PLANNING CONCEPT

This is proposed Limestone Mining Project. Limestone from mining lease area will be transported through dumpers to the crusher located in Cement Plant.

5.2 POPULATION PROJECTION

Temporary influx of people will be there, as a small number of managerial and supervisory staff will be outsiders.

5.2 LAND USE PLANNING

The extent of mining lease area is 74.38 hectare. The area comprises of non forest patta Lands. During the life of the mine, mined out area will be partly backfilled and remaining area will be left for water reservoir.

5.3 ASSESSMENT OF INFRASTRUCTURE DEMAND (PHYSICAL & SOCIAL)

UTCL (RDCW) proposes to provide various infrastructural facilities within the mining lease area:

5.4 AMENITIES/FACILITIES

a) Mines office

This will serve as the administrative office for the mine and supervision of the mining operations. The facilities will include vocational training centre, mine planning & quality control cell, central stores, core library, etc.

- ✓ Maintenance facilities
- ✓ First aid
- ✓ Canteen / rest shelter
- ✓ Water facilities
- ✓ Administrative Block
- ✓ Vocational training
- ✓ Communication

Besides the above, some facilities will be provided for this mine. These are given below:

b) Blasting shelter

Blasting shelters will be provided near the mining area.

c) Lighting arrangements

Adequate portable lighting arrangements will be made at the mine faces. The main power source will be drawn from TNEB.

d) Rest Shelter

A small rest shelter with drinking water facilities will be provided.

e) Residential facilities

Most of the employees are expected to come from nearby areas. For the employees not belonging to the nearby areas, housing facility may be provided at nearby towns/villages.

6.0 PROPOSED INFRASTRUCTURE

6.1 INDUSTRIAL AREA (PROCESSING AREA)

As this is a mining project, no such processing area is required.

6.2 RESIDENTIAL AREA (NON PROCESSING AREA)

No residential area is proposed to be developed as mine workers to be engaged will be local people.

6.3 GREEN BELT DEVELOPMENT

Green belt / Plantation will be raised in 7.5 m safety zone and nala barrier zone, all along the haul road and near administrative building etc. In addition to this backfilling area will be stabilized and afforested. The trees will be planted at suitable grid spacing to encourage proper growth.

6.4 SOCIAL INFRASTRUCTURE

During life of mine, the communities in the surrounding villages may depend on the mine and its employees for some of their economic activities due to development of small businesses linked to

the mine and its employees. The mining activity will be instrumental in improving living conditions of the local population by providing them with additional employment opportunities and bringing medical, educational, consumer durable, and communication facilities within their reach.

Various development activities will be taken up the project proponent in the nearby villages which will broadly cover:-

- Conducting health camps, family planning and welfare programs, eye camps etc.
- Promoting primary education in the area and adult education campaigns.
- Providing grants/aid to the nearby school/colleges
- Afforestation programs and raising of nurseries
- Environmental awareness programs
- Enhancement of communication facilities in the nearby villages in partnership with government agencies.
- Organizing and promoting cultural festivals, sports in nearby villages to enhance communal harmony

6.5 CONNECTIVITY

The lease area is well connected by Road and rail route. The nearest town Ariyalur can be approached by road in all seasons. The nearest railway station is Ottakovil Kuthur of Southern Railway which is ~ 1.5 km from the mine site. The lease area is situated at a distance of 3.5 km in NW Direction from SH - 143 & ~ 6.5 km in SW Direction from SH - 27.

6.6 DRINKING WATER MANAGEMENT (SOURCE & SUPPLY OF WATER)

The total Water requirement will be 30 KLD and the same will be sourced from borewell.

6.7 SEWERAGE SYSTEM

The sewage generated from the mine office will be discharged into soak pit via septic tanks.

6.8 Industrial Waste management

Dust generated during drilling will be minimized by using Drilling machines equipped with water injection system. Blasting will be done by NONEL system, to control & prevent the dust to get air borne and to control the fly rock. Regular water spraying will be done on haul roads, blasted mucks, dumps to avoid fugitive dust. Green belt will be developed all along the mining pit area, haul roads the lease boundary.

No waste water will be generated from mining operation. Waste water generation from mine workshop will be treated in oil / grease separator system & treated water will be utilized for dust suppression. Soak pits will be provided for the disposal of domestic waste water generated from mine office.

Surface run off generation during rainy season will be channelized via Garland drain/ filtration bund (around working pits and dumps) to retain the water percolation coming from waste dumps for settling of solid particles. Clear water will be allowed to flow in natural courses.

6.9 Solid waste Management:

Overburden/waste generated in the mine will be used for backfilling and plantation purpose. Interstitial clay will be utilized for development of greenbelt through plantation. Over burden / Intra burden will be dumped in the dumping yard. There is no discharge / dump outside the project premises.

6.10 Power requirement & supply/source

Power requirement for the proposed mining lease is 30 KW and power will be sourced from TNEB.

7.0 REHABILITATION AND RESETTLEMENT (R&R) PLAN

NPRR, 2007 will be adopted as per the requirement.

8.0 PROJECT SCHEDULE & COST ESTIMATES

8.1 LIKELY DATE OF START OF CONSTRUCTION AND LIKELY DATE OF COMPLETION (TIME SCHEDULE FOR THE PROJECT TO BE GIVEN)

The mine will start mining operations immediately after obtaining Environmental Clearance from the MoEF, New Delhi and other statutory clearances.

8.2 ESTIMATED PROJECT COST ALONG WITH ANALYSIS IN TERMS OF ECONOMIC VIABILITY OF THE PROJECT

Total cost of the Project is ₹ 250.0 Lakhs.

9.0 ANALYSIS OF PROPOSAL

This mine project will result in growth of the surrounding areas by community development to be undertaken by the company. Direct and indirect employment will be created in nearby village surroundings. Special emphasis on Financial and Social benefits will be given to the local people including tribal population, if any, in the area.

Development of social amenities will be in the form of medical facilities, education to underprivileged and creation of self-help groups.

No major adverse effect on environment is envisaged as the required mitigation measures are inbuilt in the project.

10.0 ENVIRONMENTAL MANAGEMENT PLAN

10.1 AIR POLLUTION CONTROL

- Drilling machines will be equipped with water injection system to prevent dust to get air borne.

- Blasting will be done in most scientific manner, use of non electric ignition system, use of millisecond delay detonators and optimizing the blasting parameters to control & prevent the dust to get air borne and to control the fly rock.
- Water spraying will be done on blasted mucks and dumps to avoid fugitive dust.
- Rock breaker will be used for breaking over size boulders, which eliminates the generation of dust due to secondary blasting activities.
- Periodical water spraying on the haul roads will be done.
- Thick greenbelt will be developed around the mine to arrest the fugitive emissions.

10.2 WATER POLLUTION CONTROL

- Garland drain/ filtration bund will be provided around working pits and dumps to retain the water percolation coming from waste dumps for settling of solid particles. Clear water will be allowed to flow in natural courses.
- Storm water during monsoon period will be accumulated in suitable locations for recharging ground water.
- Soak pits will be provided for the disposal of waste water generated from mine office.
- Arrangement for separation of oil / grease system for waste water generated from mine workshop. The treated water will be utilized for dust suppression.

10.3 NOISE POLLUTION CONTROL

- Control Blasting will be carried out to minimize vibration.
- Earmuffs/earplugs will be provided to all operators and employees working near the machinery.
- Proper maintenance, oiling and greasing of machines at regular intervals will be done to reduce generation of noise.
- Plantation will be done to minimize the propagation of noise.
- Periodical monitoring will be done.

10.4 Solid/ Hazardous Waste Management

- Overburden/waste generated in the mine will be used for backfilling and plantation purpose.
- Interstitial clay will be utilized for development of greenbelt through plantation.
- Over burden / Intra burden will be dumped in the dumping yard.
- There is no discharge / dump outside the project premises.

10.5 Green Belt Development

- Green belt will be developed along with the periphery of mine lease area.
- Plantation will be done all along the haul road, roads, periphery of the mining lease area, dump yard etc.
- The trees will be planted at suitable grid spacing to encourage proper growth.
- This will help in improving greenery level of the area and help in mitigating the effect of fugitive dust.

